

REMARKS

Claims 1-2, 4 and 7-9 were rejected as unpatentable over SHINO et al. 5,656,893, and claims 10, 12 and 15 were rejected as unpatentable over SHINO et al. in view of TSAI et al. 5,508,584. The remainder of the claims were rejected further in view of other references. Claims 1 and 10 have been amended and reconsideration and withdrawal of the rejections are respectfully requested.

Claims 1 and 10 have been amended to provide that the phosphor layer (6 in Figure 4, element numbers being provided by way of example only) continuously covers an entirety of the inner space overlying the linear parts of the first and second electrodes 7, 8 so that substantially all of the phosphor layer is excited by discharge paths ( $P_1-P_n$ ) defined between adjacent pairs of the linear parts of the first and second electrodes. This is illustrated, by way of example, in Figure 4 where it is apparent that the interdigitated arrangement of the linear parts 7 and 8 and the excitation thereof provides that almost an entirety of the continuous phosphor layer is exposed to the excitation provided by the discharge paths  $P_1-P_n$ . Claim 1 further provides that this occurs without scanning the first and second electrodes.

As explained in the specification (for example beginning at page 5) one of the objects of the present invention is to provide a flat-type light-emitting device having an even or

uniform distribution of light intensity. The prior art, such as illustrated in Figure 3b, included discharge paths between adjacent electrodes, but there were large gaps where the phosphor layer was not excited. An object of the present invention is to avoid these gaps. By way of example, the device of the present invention may be operated to continuously back-light LCDs or as a continuous and uniform light source for a photocatalyst apparatus. To operate the device, one may simply apply voltages across pairs of comb-shaped electrodes 7 and 8, without the need for scanning electrodes.

It is not believed that SHINO et al. or TSAI et al. or the combination thereof discloses or suggests this feature. Neither reference has a continuous phosphor layer that is excited by the discharge path defined between adjacent pairs of the interdigitated electrode fingers. As is apparent from the various drawings and the references, the electrodes in the prior art excite particular portions of the phosphor, for example those with different colors. There is no suggestion to provide the continuous layer claimed herein wherein the layer is excited by the discharge paths among the interdigitated electrode parts.

By way of further explanation, the light-emitting device according to claims 1 and 10, the discharge paths P1 to Pn are stably formed between adjacent pairs of the linear parts of electrodes 7 and 8 so that discharge areas are formed at both sides of the linear parts such as shown in Figure 4. As is

apparent therein, there is almost no area of the phosphor layer 6 that is not excited by one of the discharge paths. The area between adjacent pairs of the same electrodes (e.g. between electrodes 7-2a and 7-2b) is so small as to be inconsequential.

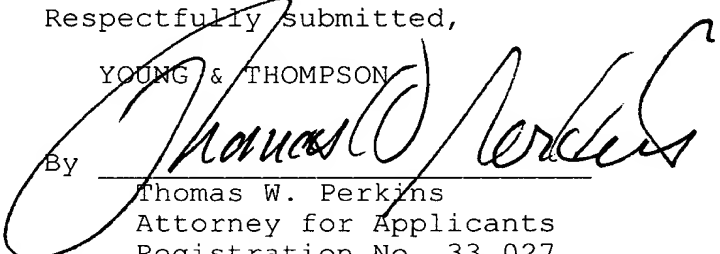
In view of the present amendment and the foregoing Remarks, it is believed that the present application has been placed in condition for allowance. Reconsideration and allowance are respectfully requested.

Attached hereto is a marked-up version of the changes made to the claims. The attached page is captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE."

Respectfully submitted,

YOUNG & THOMPSON

By



Thomas W. Perkins  
Attorney for Applicants  
Registration No. 33,027  
745 South 23<sup>rd</sup> Street  
Arlington, VA 22202  
Telephone: 521-2297

June 10, 2003

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

IN THE CLAIMS:

Claim 1 has been amended as follows:

1. (twice amended) A flat-type light-emitting device comprising:

(a) an envelope having an inner space and two inner surfaces that face each other;

the inner space being filled with a discharge medium;

(b) a phosphor layer on one of the two inner surfaces;

(c) a first electrode on the other of the two inner surfaces;

the first electrode including linear parts;

each of the linear parts having branches apart from each other at a first gap; and

(d) a second electrode on the other of the two inner surfaces adjacent to the first electrode;

the second electrode including linear parts;

each of the linear parts having branches apart from each other at a second gap;

wherein the linear parts of the first electrode and the linear parts of the second electrode are arranged alternately in a first direction,

wherein the phosphor layer continuously covers an entirety of the inner space overlying the linear parts of the

112  
first and second electrodes so that substantially all of the phosphor layer is excited by discharge paths defined between adjacent pairs of the linear parts of the first and second electrodes without scanning the first and second electrodes.

Claim 10 has been amended as follows:

10. (amended) A light emitting device comprising:

two spaced apart substrates defining an inner space therebetween, said inner space being filled with a discharge medium;

a phosphor layer on an inner surface of one of said two substrates; and

first and second electrodes on an inner surface of the other of said two substrates,

said first electrode having a linearly extended first connecting part and plural first fingers extending generally perpendicular to said first connecting part at a first distance from each other, each of said plural first fingers having two parallel branches that are spaced apart a second distance from each other, the second distance being less than the first distance,

said second electrode having a linearly extended second connecting part that is generally parallel to said first connecting part and plural second fingers extending generally perpendicular to said second connecting part at a third distance

from each other, each of said plural second fingers having two parallel branches that are spaced apart a fourth distance from each other, the fourth distance being less than the third distance, and

wherein said first and second fingers are interdigitated so that each of said first fingers is between a respective pair of adjacent ones of said second fingers,

wherein said phosphor layer is excited by discharge paths defined between adjacent pairs of said first and second fingers and continuously covers an entirety of said inner space overlying said interdigitated first and second fingers so that substantially all of said phosphor layer is excited by the discharge paths.